XPR510D

INSTALLATION / OWNER'S MANUAL

Mobile Power Amplifiers

DUAL AUDIO

LOUD & CLEAR

Preparation

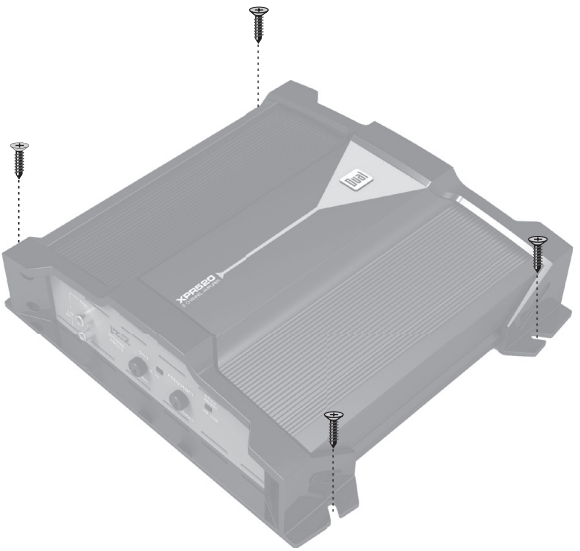
Please read entire manual before installation. Due to the technical nature of amplifiers, it is highly recommended that your Dual amplifier is installed by a professional installer or an authorized dealer.

Before You Start

- Disconnect negative battery terminal. (consult a qualified technician for instructions)
- Avoid installing the amplifier where it would be subject to high temperatures, such as from direct sunlight, or where it would be subject to dust, dirt or excessive vibration.
- Use extreme caution when drilling holes to avoid damaging fuel lines or existing vehicle wiring.
- All amplifier installations require power, signal and speaker wires (not included).
- An amplifier installation kit (sold separately) is highly recommended to facilitate the installation. Consult your dealer for recommendations.

Mounting Location

- Choose a mounting location for the amplifier. Suggested locations include under a seat or in the trunk.
- The amplifier can be mounted horizontal (recommended) or vertical. For optimum performance, make sure to provide at least 1" of space to around all sides. Do not mount the amplifier under carpets or where airflow is restricted.
- Do not install the amplifier where it may be exposed to moisture.
- The optimum mounting location varies between vehicles. Remember to test all amplifier functions before completing the final mounting procedure.



TYPICAL MOUNTING METHOD

Connection Descriptions

Note: Be sure to follow specific instructions included with your amplifier installation kit (not included with this amplifier). The information below should be used a general guideline only.

Power Wire (BAT+)

- Disconnect negative battery terminal before proceeding. Consult a qualified technician for instructions if you are unsure.
- Plan wire routing before cutting any wires to length. Begin by routing the power +12V wire from the battery to the amplifier location. Use a grommet when running wires through the firewall or metal openings. Avoid running the power wire near existing vehicle wiring to prevent induced noise from entering the audio system.
- Use extreme caution when drilling holes to avoid damaging fuel lines or existing vehicle wiring.
- The +12V wire MUST be fused within 18" of the battery for protection of the vehicle's electrical system.

Ground Wire (GND)

- The amplifier ground wire should be as short as possible. Choose a clean unpainted section of metal or the vehicle chassis when attaching the ground connection. Be sure to clean the area of any dirt or grease.

Remote Turn-on Wire (REM)

- The remote turn-on wire connects to the head unit's amplifier turn-on lead or power antenna output.

Speaker Wires

- Choose adequate gauge speaker wire depending on your exact amplifier/speaker combination. Be sure to observe polarity when connecting.
- Do not ground any speaker wires or connect any speaker wires together.

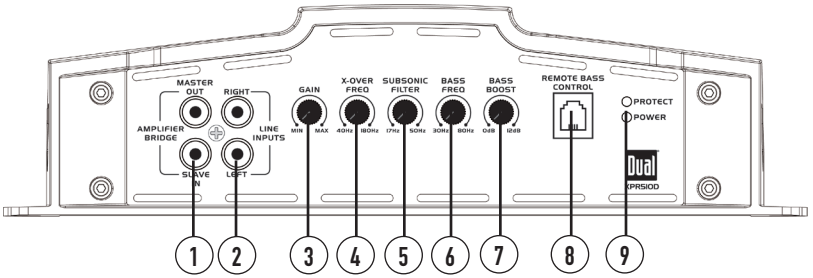
Input Signal

- The amplifier's input signal connects to the head unit's low level (RCA) or high level (speaker wire) outputs.
- Low level input signal deliver the best performance. If unavailable, use the high level inputs - when interfacing with factory head unit for instance.

CAUTION

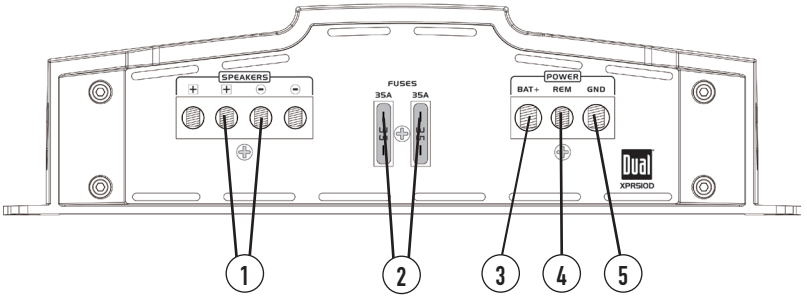
- Do not use both low and high level inputs at the same time - connect only one or the other.
- Never run any wires underneath or outside the vehicle.

Audio Inputs and Controls



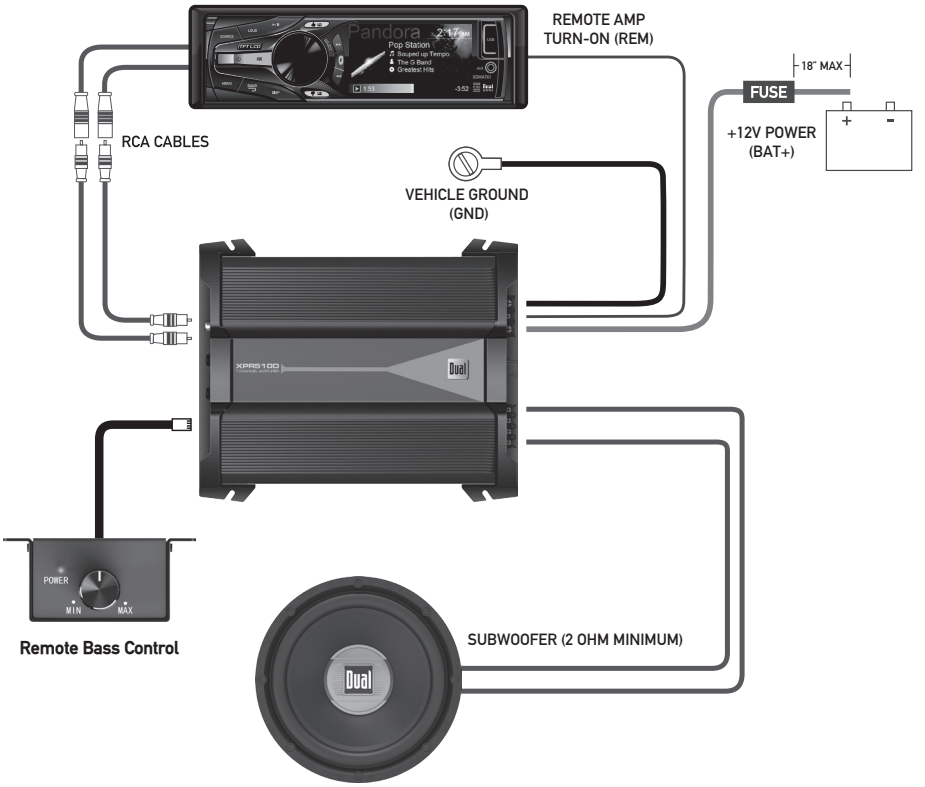
1. Amplifier Bridge
2. RCA Line Inputs
3. Gain
4. Crossover Frequency Control
5. Subsonic Filter
6. Bass Frequency
7. Bass Boost
8. Remote Bass Control
9. Protect & Power LEDs

Power and Speaker Connections



1. Speaker Connections
2. Fuse(s)
3. +12VDC Battery Connection
4. Remote Connection
5. Ground Connection

Typical Wire Routing



Single subwoofer connection shown. See page 6 for additional details.

Main Power Connections

Connect +12V, GND and REM wires accordingly. A suitable fuse MUST be installed on the +12V lead within 18" of the battery for protection of the vehicle's electrical system.

Fuse Rating

When replacing fuses, make sure new fuse is the correct type and amperage. Using an incorrect fuse could damage the amplifier.

35 amp ATO x 2

Power/Ground Wire Size

For optimum performance, use only the wire size listed below or larger. Make sure to use the same size power and ground wire.

4 awg

Amplifier Connections

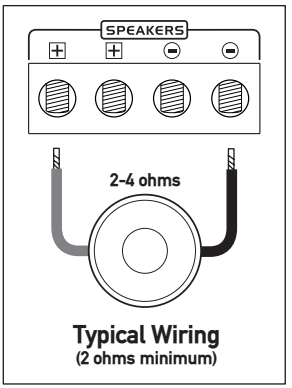
Speaker Connections

Connect speaker wires observing polarity. The XPR510D is a 1 channel amplifier but has two positive and two negative speaker terminals. When connecting one subwoofer, only use one positive and one negative terminal. When connecting two subwoofers, connect one subwoofer to each set of positive and negative terminals.

When connecting one subwoofer, 2 ohms is the minimum load. Dual voice coil subwoofers that feature two 4 ohm voice coils provide an optimal match for the XPR510D.

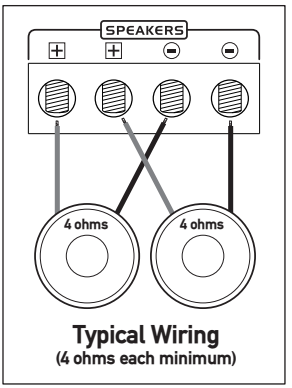
When connecting two subwoofers, each subwoofer should not have an ohm rating below 4 ohms. Connecting one subwoofer to each terminal automatically sets the two subwoofers in a parallel connection.

One Subwoofer



Typical Wiring
(2 ohms minimum)

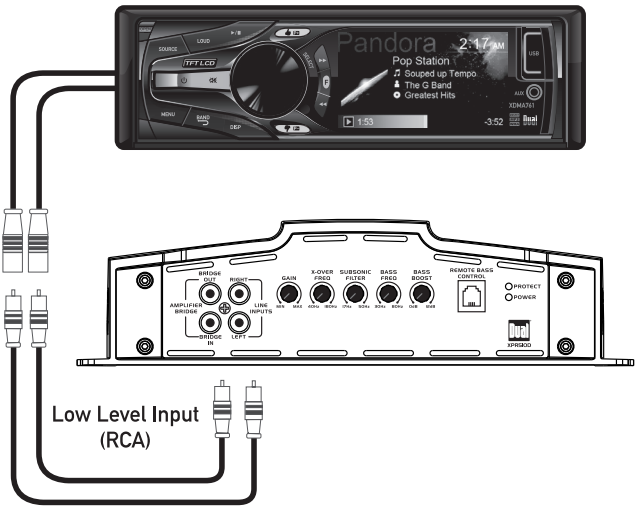
Two Subwoofers



Typical Wiring
(4 ohms each minimum)

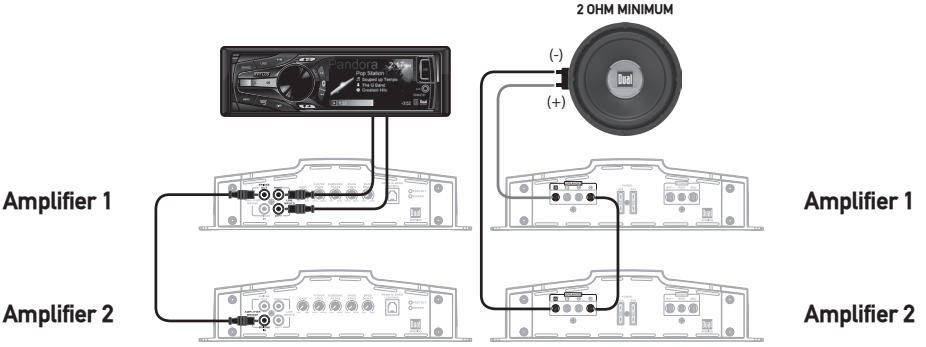
Input Signal Connections

Typical trunk-mount amplifier installations require a 17-20 foot RCA cable. Most trucks and under-seat applications require a 6-9 foot RCA cable. Using twisted pair construction RCA cables will minimize noise.

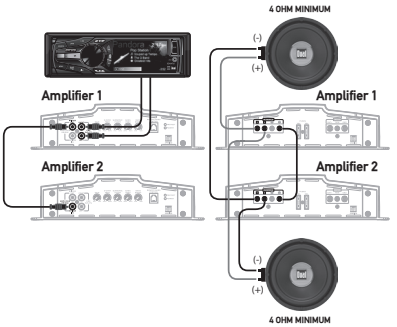


Connecting Two Amplifiers - Bridge Mode

The XPR510D features an Amplifier Bridge mode, where two XPR510D amplifiers can be connected together. When two XPR510D amplifiers are connected together, the power from both amplifiers is combined.



Signal Connections	• Connect RCA cables from the head unit to the LINE INPUTS of Amplifier #1. • Connect a single RCA cable from the BRIDGE OUT of Amplifier #1 to the BRIDGE IN of Amplifier #2.
Speaker Connections	• Connect one of the positive (+) speaker outputs from Amplifier #1 to the positive speaker terminal of the subwoofer. • Connect one of the positive (+) speaker outputs from Amplifer #2 to the negative speaker terminal of the subwoofer. • Connect a single speaker wire between the negative speaker terminals of Amplifier #1 and Amplifier #2. • **Note**: When connecting one subwoofer, the load should not be lower than 2 ohms.
Power Connections	• Connect the power connections of both amplifiers normally, as described on page 6. It is recommended to use 0 gauge (or larger) power and ground wire, with distribution blocks to supply power for both amplifiers.
Remote Bass Control	• To use the remote bass control when connecting two amplifiers together, adjust the gain on both amplifiers to full maximum. Connect one remote bass control to Amplifier #1.



Connecting Two or More Subwoofers

When connecting two subwoofers: (4 ohm minimum per sub)
- Connect the first subwoofer to the first set of positive speaker output terminals.
- Connect the second subwoofer to the second set of positive speaker output terminals.
- Connect speaker wire between the negative terminals of each amplifier.

Polarity: the positive speaker output of Amplifier #1 always should always be connected to the positive terminal of the subwoofer.

When connecting more than two subwoofers, use parallel and series connections to connect the subwoofers together and to the amplifiers. Do not connect a load lower than 4 ohms per positive terminal on the amplifier. Always measure the impedance using a multimeter.

Configuration/Setup

Gain

The gain control is used to obtain the best possible match between the head unit audio output and the amplifier input.

- Begin by turning the input level control fully counterclockwise.
- Next, turn up the head unit volume control around 3/4 of the way up.
- Adjust the input level control clockwise until audible distortion is heard, then slightly counterclockwise to provide the best match.
- Repeat for all input level controls.

Crossover Frequency Control

The low pass filter is always enabled, allowing only bass frequencies to output from the subwoofer. Turn the **X-OVER FREQ** knob to adjust the bass frequency.

Subsonic Filter

The subsonic filter limits very low frequencies from being sent to the subwoofer. Turn the **SUBSONIC FILTER** knob to adjust the frequency of bass that is filtered out. Match this setting with the low end frequency response of your subwoofer.

Bass Center Frequency

Changes the frequency at which the bass boost function will provide its increase. Turn the **BASS FREQ** knob clockwise to center the bass boost around higher frequencies or counterclockwise to center the the bass boost around lower frequencies.

Bass Boost

Increases the volume of bass by a variable amount, centered at the bass frequency adjustment. Turn the **BASS BOOST** knob clockwise to increase the volume of the bass. Adjust this control with caution, as improper use can damage speakers.

LED Indicator

The LED indicator illuminates green during normal operation (**POWER**) and red when the amplifier detects a fault (**PROTECT**).

Remote Bass Control

When the remote bass control is connected, turning the knob will adjust the gain of the amplifier. Connect the remote bass control connector to the amplifier.

Important: Turn the Gain on the side panel of the amplifier to MAX to allow the remote bass control to function properly.

Limited One-Year Warranty

This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

Dual Electronics Corp. warrants this product to the original purchaser to be free from defects in material and workmanship for a period of one year from the date of the original purchase.

Dual Electronics Corp. agrees, at our option, during the warranty period, to repair any defect in material or workmanship or to furnish an equal new, renewed or comparable product (whichever is deemed necessary) in exchange without charges, subject to verification of the defect or malfunction and proof of the date of purchase. Subsequent replacement products are warranted for the balance of the original warranty period.

Who is covered? This warranty is extended to the original retail purchaser for products purchased from an authorized Dual dealer and used in the U.S.A.

What is covered? This warranty covers all defects in material and workmanship in this product. The following are not covered: software, installation/removal costs, damage resulting from accident, misuse, abuse, neglect, product modification, improper installation, incorrect line voltage, unauthorized repair or failure to follow instructions supplied with the product, or damage occurring during return shipment of the product. Specific license conditions and copyright notices for the software can be found via www.dualav.com.

What to do?

1. Before you call for service, check the troubleshooting guide in your owner's manual. A slight adjustment of any custom controls may save you a service call.

2. If you require service during the warranty period, you must carefully pack the product (preferably in the original package) and ship it by prepaid transportation with a copy of the original receipt from the retailer to an authorized service center.

3. Please describe your problem in writing and include your name, a return UPS shipping address (P.O. Box not acceptable), and a daytime phone number with your shipment.

4. For more information and for the location of the nearest authorized service center please contact us by one of the following methods:

   - Call us toll-free at 1-866-382-5476
   - E-mail us at cs@dualav.com

Exclusion of Certain Damages: This warranty is exclusive and in lieu of any and all other warranties, expressed or implied, including without limitation the implied warranties of merchantability and fitness for a particular purpose and any obligation, liability, right, claim or remedy in contract or tort, whether or not arising from the company's negligence, actual or imputed. No person or representative is authorized to assume for the company any other liability in connection with the sale of this product. In no event shall the company be liable for indirect, incidental or consequential damages.

Specifications

Power Output:
750 Watts x 1 channel @ 4 ohms
1500 Watts x 1 channel @ 2 ohms
Peak Music Power Output: 1500 Watts
Signal to noise ratio: 75dBA (reference: 1 watt into 4 ohms)
Frequency response: 40Hz ~ 180Hz
Amplifier dimensions: 2.76" x 11.06" x 10.55"
Typical installation dimensions: 3.75" (D) x 11.25" (W) x 11.50" (H)

Troubleshooting

Problem	Cause	Action
Unit will not turn on (no power LED indicator)	+12V wire not connected or incorrect voltage REM wire not connected or incorrect voltage	Check connections for proper voltage (11~16VDC)
	GND wire not connected	Check connection to ground
	Fuse(s) blown	Replace fuse(s)
Unit has power - LED is green (but no sound)	Speaker wires not connected	Check connections at speakers
	Volume turned all the way down	Increase volume level at head unit
	One or more speaker wires touching each other or touching chassis ground	Insulate all bare speaker wires from each other and chassis ground
	Speaker(s) defective or damaged	Check/replace speaker(s)
	Input signal not connected	Check high or low level inputs for proper connection
Unit blows fuse(s)	Incorrect fuse rating	Use fuse(s) with correct rating
	+12V wire touching chassis ground	Check for pinched wire
	Speaker(s) defective or damaged	Check/replace speaker(s)
Engine noise	Bad ground connection	Make sure amplifier is grounded to clean bare metal
	Signal ground loop or RFI (radio frequency interference)	Re-route RCA cables from existing high current wiring
LED illuminates red (protect mode)	One or more speaker wires touching each other or touching chassis ground	Insulate all bare speaker wires from each other and chassis ground
	Speaker(s) defective or damaged internally (shorted)	Check/replace speaker(s)
	Speaker load less than 2 ohms (stereo) Speaker load less than 4 ohms (bridged)	Adjust speaker load - amplifier will not operate at less than 4 ohms when bridged
Distorted audio output	Incorrect input signal type or input level too high	Check connections and reduce/adjust input level
Low audio output	Incorrect input signal type or input level too low	Check connections and increase/adjust input level
Weak bass	Speaker(s) are wired out of phase	Check (+) and (-) speaker connections (Observe correct polarity)

Notes

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NSA0413-V01